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## Developing Wide Angle Spherical Neutron Polarimetry at Oak Ridge National Laboratory

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Spherical Neutron Polarimetry (SNP) analyzes complex magnetic structures through distinguishing contributions from nuclear-magnetic interference and chiral structure in addition to nuclear magnetic scattering separation. This analysis is achieved through determining all components in the polarization transfer process. Currently, wide-angle SNP is being realized at Oak Ridge National Laboratory (ORNL) for multiple beamlines including: the polarized triple-axis spectrometer (HB-1) and general-purpose small angle neutron scattering instrument (CG-2) at the High Flux Isotope Reactor (HFIR), as well as the hybrid spectrometer (HYSPEC) at the Spallation Neutron Source (SNS). The SNP device consists of three units: incoming/outgoing neutron polarization control, sample environment and a zero-field chamber. The incoming/outgoing neutron polarization regions use high- $T_c$  superconducting YBCO films and mu-metal to achieve full control of neutron polarization. The device was transported and tested at the University of Missouri research reactor (MURR). We report the test results and provide a new method for placing the device on a time-of-flight beamline.

### Summary

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